

REMARKS

In response to the Office Action, dated May 13, 2005, which includes new grounds for rejecting the claims and a telephonic conversation with the Examiner, applicant believes that the prosecution of this matter has been re-opened after applicant has submitted a conforming Appellant's Brief in response to the Notice of Appeal filed on December 7, 2004 and respectfully requests entry of this Amendment and reconsideration in view of the amendments made to the claims and for the remarks made herein.

Claims 1-3, 5-9 and 11-17 are pending and stand rejected.

Claims 1, 3, 5 and 7 have been amended. Claims 4, 10, 15, 17 and 18 are cancelled.

The title is objected to as not being descriptive.

Applicant thanks the examiner for his observation and has requested the time be amended to more clearly describe the subject matter claimed.

Applicant respectfully requests that amended title be entered and the objection be withdrawn.

Claims 1-3, 5-9 and 11-17 are rejected under 35 USC 112, second paragraph as being indefinite.

Applicant has carefully reviewed the remarks made in the Office Action and has amended the noted claims to more clearly state the invention to provide proper antecedent basis for the subject matter claimed.

Having amended the claims appropriately, applicant respectfully requests that the amendments be entered and the rejection withdrawn.

Claims 1-3, 5-9, 11-13 and 15-17 stand rejected under 35 USC 103(a) as being unpatentable over Assar (PCT Publication no. WO 95/10083).

The Office Action states that Assar fails to disclose claim element "the limit value is increased when a predetermined number, which is at least the majority of the counters of the blocks from said variety exceed the limit value. ... [However], Assar discloses a functionally equivalent method where the limit value is effectively increased when a predetermined number ... [reaches] a maximum value by resetting the counters." (see

page 5, first full para., Instant Office Action). The Office Action further takes notice that “a flash cell device has a maximum life in terms of erase-write cycles, there’s a need to keep track of the total number of erase cycles to be able to determine the remaining life of a device. … However, since the total erase count (of Assar) is reset, the system can easily keep track of the overall wear level by keeping track of the number of wear-level cycle operations.” (see page 6, 2nd para., *Id.*).

Applicant respectfully disagrees with, and explicitly traverses, the reason for rejecting the claims.

A claimed invention is *prima facie* obvious when three basic criteria are met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference or combined references must teach or suggest all the claim limitations.

In this case, Assar teaches a method for managing the number of erase cycles in a storage medium. As the Office Action notes, Assar fails to disclose raising a limit value to which a counter is compared to determine whether data may be written into a corresponding block. Rather the Office Action states that a similar operation may be performed by resetting counters as is performed by Assar.

Applicant disagrees. Resetting counters is not functionally the same as raising a limit value as recited in the claims. In fact, the Office Action, realizing that resetting the counters is not the same as increasing a limit value, states that in resetting the counters another counter, which retains the number of resets that have occurred, must be maintained in order to determine the total number of memory writes that have been made to a block (i.e., reset counter value x number of resets = total number of writes). Thus, in suggesting that the claimed subject matter is obvious in view of the single prior art reference, the Office Action has required additional elements be incorporated into the device of Assar to satisfy the operation of the subject matter claimed.

In the matter of obviousness there is a great emphasis placed on “the importance of the motivation to combine.” Yamanouchi Pharmaceutical Co. v. Danbury Pharmacal,

Inc. 231 F. 3d. 1339, 56 USPQ2d. 1641, 1644 (Fed. Cir. 2000). More specifically, in the matter of obviousness, this court found that:

an examiner ... may often find every element of a claimed invention in the prior art. If identification of each claimed element of the prior art was sufficient to negate patentability, very few patents would ever issue. Furthermore rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner ... to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention ... To counter this potential weakness in the obviousness construct, the suggestion to combine requirements stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness. *id.* quoting In re Rouffet, 149 F.3d 1350, 1357-58, 47 USPQ 2d 1453, 1457 (Fed. Cir. 1998)

In this case, applicant believes that an impermissible use of the teachings of the instant application have been used as a blueprint to expand the teachings of Assar without any suggestion or reason for such a expansion. As the Office Action states, Assar fails to disclose raising a limit value to, when a majority of counters has achieved the limit value as is recited in the claims, and, hence, Assar fails to provide any motivation to incorporate such a feature.

Having shown that there is no teaching or suggestion in the Assar to be modified as suggested by the Office Action, applicant submits that the reason for the rejection of claim 1 has been overcome and the rejection can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claims.

With regard to independent claim 7, this claim recites subject matter similar to that recited in claim 1 and was rejected citing the same reference used in rejecting claim 1. Thus, for the amendments made to claim 7, which are similar to those made in claim 1, and for the remarks made in response to the rejection of claim 1, which are also applicable in response to, and reasserted, as if in full, in response to the rejection of the claim 7, applicant submits that the reason for the rejection of claim 7 has been overcome and the rejection can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claims.

With regard to claim 15, applicant has requested this claim be cancelled, hence, the reason for the rejection is no longer appropriate.

The other claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of the patentability of each on its own merits is respectfully requested.

Claims 1-3, 5-9, 11-13 and 15-17 stand rejected under 36 USC 103(a) as being unpatentable over Assar in view of Bruce (USP no. 6,000,006).

The Office Action states that Assar fails to disclose “that the limit value is increased when a predetermined number ... of the blocks exceed the limit value ... On the other hand, Bruce specifically discloses a method ... where the limit value is increased. ... It would [be] obvious ... to use the threshold adjustment teachings of ... Bruce in the ... system of Assar.”

Applicant respectfully disagrees with, and explicitly traverses, the reason for rejecting the claims.

The Bruce reference purports to improve upon the Assar methodology (compare col. 2, line 21 of Bruce to page 3, lines 25-32 of Assar). Assar periodically clears erase counters for respective blocks of memory, but does not maintain a count of the total number of erasures for a block over the lifetime of the memory. Bruce notes that the lack of this total number, as a result of the periodic clearing of the erase counters is undesirable (col. 2, lines 31(32)-33(34)), and leads to uneven wear of the blocks over the long run (col. 2, lines 37-39). On the other hand, if Assar were to be modified to simply forego the clearing of erase counters, this would lead to inefficient page thrashing (col. 2, lines 39(40)-42(43)). In particular, although retention of the total erase counts advantageously affords longer-term wear leveling (col. 2, lines 36(37)-38(39)), Bruce nevertheless retains a periodically-cleared erase count which Bruce terms an “incremental-write count” (abstract, next-to-last sentence). The latter count is cleared at each wear-leveling operation for the block (col. 3, lines 6-8), whereas total-write count for the block is never cleared (abstract, next-to-next-to-last sentence). In Bruce, wear-leveling is performed only (col. 3, line 9: “must”) when both (col. 3, line 8: “Both”; line 31(32): “both”) a total-write threshold and an incremental-write threshold are exceeded

by the respective incremental-write count and total-write count. In short, Bruce is not proposing to modify Assar. Bruce proposes to replace Assar.

Notably in this regard, Bruce operates in a manner fundamentally different than Assar. Bruce does not, for example, wear-level by copying data from one block to another as in Assar. Instead, Bruce performs wear-leveling by moving entries within a unified re-mapping table (col. 3, lines 11-13).

Having shown that there is no motivation to combine the teaching of Assar and Bruce, as suggested, applicant submits that the reason for the rejection has been overcome. Applicant respectfully requests that the rejection be withdrawn and the claim allowed.

With regard to independent claim 7, this claim recites subject matter similar to that recited in claim 1 and was rejected citing the same reference used in rejecting claim 1. Thus, for the amendments made to claim 7, which are similar to those made in claim 1, and for the remarks made in response to the rejection of claim 1, which are also applicable in response to, and reasserted, as if in full, in response to the rejection of the claim 7, the reason for the rejection of claim 7 has been overcome and the rejection can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claims.

With regard to claim 15, applicant has requested this claim be cancelled, hence, the reason for the rejection is no longer valid.

The other claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of the patentability of each on its own merits is respectfully requested.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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